

In the Claims

1. (Currently amended) A burner for fabricating aerosol doped waveguides, the burner including comprising:

a plurality of inlet ports each having connected to a respective torch conduit, each of said torch conduits connecting its respective inlet port to a gas mixing region; and

the burner further including a gas expansion chamber provided upstream of said gas mixing region for at least one of said inlet ports, wherein said at least one inlet port is orientated at a first angle with respect to a longitudinal axis of the burner, and wherein said first angle is in the range between 5° and 45°.

2. (Canceled)

3. (Currently Amended) A burner as claimed in claim 1, wherein the gas expansion chamber is located at the junction of the at least one an inlet port and the respective torch conduit.

4. (Currently amended) A burner as claimed in Claim 1, wherein the gas expansion chamber is located upstream of the junction between the at least one inlet port and the respective torch conduit.

5. (Currently amended) A burner as claimed in Claim 1, wherein the gas expansion chamber is located downstream of the junction between the at least one inlet port and the respective torch conduit.

6. (Previously presented) A burner as claimed in Claim 1, wherein said inlet ports feed oxygen, hydrogen, waveguide deposition material carried by a gas, and aerosol dopant ion solution carried by a carrier gas to the said burner.

7. (Original) A burner as claimed in Claim 6, wherein the hydrogen port is located downstream of the waveguide deposition material inlet port.

8. (Previously Presented) A burner as claimed in Claim 6, wherein the aerosol inlet port is located downstream of the hydrogen inlet port.

9. (Previously Presented) A burner as claimed in Claim 6, wherein the oxygen inlet port is located downstream of the aerosol inlet port.

10. (Currently amended) A burner as claimed in Claim 1, wherein said at least one inlet port is located in a radial plane with respect to a longitudinal axis of the burner which differs from a radial plane containing any said other inlet ports.

11. (Original) A burner as claimed in Claim 10, wherein said at least one inlet port is located in a plane orientated at 180° to the radial plane of the other inlet ports.

12. (Currently amended) A burner as claimed in Claim 1, wherein said at least one inlet port is orientated at said a first angle with respect to the burner axis, and wherein the other inlet ports are orientated at a second angle with respect to the burner axis, said first angle being less than said second angle.

13. (Canceled)

14. (Previously presented) A burner as claimed in Claim 12, wherein said first angle lies in the range 5° to 25°.

15. (Previously presented) A burner as claimed in claim 1, wherein said at least one inlet port is an aerosol inlet port for providing aerosol droplets of a dopant ion solution to said burner.

16. (Canceled)

REMARKS

In the present Response and Amendment, Applicants' amend claims 1, 3-5, 10 and 12 and cancel claims 2 and 13. Pending in the application are claims 1, 3-12 and 14-15, of which claim 1 is independent. The following comments address all stated grounds for rejection and place the presently pending claims, as identified above, in condition for allowance.

Applicants' thank the Examiner for the close review of the claims, and for indicating that claims 13 and 14 recite patentable subject matter. Applicants' amend the claims to overcome the rejections under 35 U.S.C. §112, second paragraph, set forth in the Office Action. Specifically, Applicants amend claim 1 to incorporate the limitation of claim 13, which is indicated by the Examiner to be a patentable subject matter.

Drawings

Figures 1 and 2 are objected to because of not being designated by a legend --Prior Art--. In response to the objection, Applicants provide herewith amended drawings to include the legend --Prior Art-- in Figures 1 and 2. In light of the amendment, Applicants request the withdrawal of the Examiner's objection to the drawings.

Claim Rejections-35 U.S.C. §112

Claims 1-15 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. In response to the rejection, Applicants amend claims 1, 3, 4, 5 and 10 to address each of the points that the Examiner raises in the Office Action. In light of the claim amendments, Applicants submit that claims 1, 3-12 and 14-15 are in condition for allowance.

Claim Rejection-35 U.S.C. §102

Claims 1-15 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,440,558 of Nath et al. (the Nath reference). Applicants respectfully traverse this rejection.

Claim 1 recites a burner for fabricating aerosol doped waveguides. The burner includes a plurality of inlet ports and a gas expansion chamber provided upstream of a gas mixing region for at least one of the inlet ports. The at least one inlet port is orientated at a first angle with respect to the longitudinal axis of the burner, and the first angle lies in the range 5° to 45°.

The Nath reference relates to a process for forming optical preforms for the production of optical fibers. The Nath reference discloses that hydroxyl free deposition with high efficiency and at a high deposition rate may be achieved by utilizing a ring-shaped plasma activated axial chemical vapor deposition obtaining 100% chemical conversion and fractional volatilization of impurities.

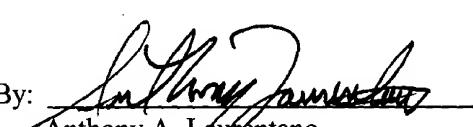
Applicants respectfully submit that the Nath reference fails to disclose each of the essential elements of the claimed invention. The Nath reference fails to disclose that the at least one inlet port is orientated at a first angle with respect to the longitudinal axis of the burner, and the first angle lies in the *range 5° to 45°*, as recited in claim 1. The Nath reference discloses a burner for fabricating optical performs. The Nath reference discloses at column 2, line 33-41 that the inlet port is oriented *substantially tangentially* of the respective upstream end of the associated flow passage. The Nath reference does not disclose an inlet port that is oriented at an angle of between 5° and 45° with respect to longitudinal burner axis. In light of the aforementioned argument, Applicants submit that the Nath reference does not disclose all of the essential elements of claim 1. Applicants therefore submit that claims 1-15 are not anticipated by the Nath reference. Furthermore, the limitation of claim 1 mentioned above is incorporated from claim 13 which is indicated by the Examiner to recite a patentable subject matter. Applicants therefore believe that claim 1 now recites a patentable subject matter.

CONCLUSION

In light of the aforementioned amendment and argument, Applicants contend that each of the Examiners rejections has been adequately addressed and the pending application is in condition for allowance.

Should the Examiner feel that a telephone conference with Applicants' attorney would expedite prosecution of this application, the Examiner is urged to contact the undersigned.

Respectfully submitted,
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